



Tribhuvan University
Faculty of Humanities and Social Sciences
Central Department of Rural Development
MPhil-PhD
Micro-Syllabus

Course Title: Measurement of Human and Sustainable Development	
Level: MPhil-PhD	Full Marks: 100
Course Code: RDS 711	Year: I
Credit Hours: 3 (48 hours)	Semester: II

Course Description

This course covers theoretical and practical dimensions of measuring human and sustainable development. In the theoretical dimension, this course covers basic philosophy, evolution and principles of human and sustainable development including its types and measurement procedures. The measurement procedures specifically include construction of different types of composite indices. In the practical dimension, this course will focus on the measurement of human and sustainable development with real-world data, application of the measurement indices, and interpretation of the results. All the topics included in the course are organized in four units.

Learning Objectives

The objective of this course is to develop theoretical and practical knowledge on measurement of human and sustainable development among students. The theoretical course is expected to develop analytical skills on the interrelationship between various dimensions of human and sustainable development. The practical course, on the other hand, will enable the students to select relevant indicators, prepare data, construct different types of composite indicators to measure the human and sustainable development with the help of computer software like SPSS and Excel, and interpret the results.

Course Contents

Unit I: Measurement and Construction of Composite Indices (14 hrs)	
1.1	Conceptualization of Development Indicators
1.2	Introduction to Composite Indicators : Meaning, Origin, Evolution and Application
1.3	Philosophical Approaches and Principles of Composite Indicators
1.4	Nature and Types: Single and Composite Indicators and Weightage and Non-Weightage indicators
1.5	Construction of Composite Index : Selection of Variables, Preparation of Data sets, Code and Recode of Variables, Scaling and Test of Reliability and Validity
Readings	<p>Bandura, R. (2011). <i>Composite indicators and rankings: Inventory 2011</i>. New York: United Nations Development Programme, Office of Development Studies (UNDP/ODS Working Paper).</p> <p>Becker, W., Saisana, M., Paruolo, P., and Vandecasteele, I., (2017). <i>Weights and importance in composite indicators: Closing the gap, Ecological Indicators</i>, 80(2017): 12-22, https://doi.org/10.1016/j.ecolind.2017.03.056. (https://www.sciencedirect.com/science/article/pii/S1470160X17301759)</p> <p>Booyensl, F. (2002). An overview and evaluation of corporate indices of development. <i>Social Indicators Research</i>, 59, 115-151(2002). www.springer.com/article</p> <p>Chakrabartty, S. N. (2014). Scoring and analysis of likert scale: Few approaches. <i>Journal of Knowledge Management & Information Technology</i>, 1(2), 31-44. https://bit.ly/37XPFhE</p> <p>Cohen, L., Manion, L., & Morrison, K. (2007). <i>Research method in education (6th ed.)</i>. Taylor & Francis Group.</p> <p>De Muro, P., Mazziotta, M. & Pareto, A. Composite Indices of Development and Poverty: An Application to MDGs. <i>Social Indicator Research</i> 104, 1–18 (2011). https://doi.org/10.1007/s11205-010-9727-z</p> <p>El Gibari, S., Gómez, T., & Ruiz, F. (2019). Building composite indicators using multi-criteria methods: a review. <i>Journal of Business Economics</i>, 89(1), 1-24.</p> <p>Fernandez, E. J., & Martos, M. J. R. (2020). Review of some statistical methods for constructing composite indicators. <i>Studies of Applied Economics</i>, 38(1).</p> <p>Field, A. (2009). <i>Discovering statistics using SPSS (3rd ed.)</i>. Sage Publication: India.</p>

Joint Research Centre-European Commission. (2008). *Handbook on constructing composite indicators: methodology and user guide*. OECD publishing: OECD.

Mazziotta, M , and Pareto, A. (2013). Methods for constructing composite indices: One for all or all for one? *Rivista Italiana di Economia Demografia e Statistica*, LXVII(2), Aprile-Giugno

Mazziotta, M. & Pareto, A. (2017). Synthesis of indicators: The composite indicators approach. In *Complexity in society: From indicators construction to their synthesis* (pp. 159-191). Springer, Cham.

Moreira, S. B., Simões, N., & Crespo, N. (2012, May). Composite indicators of development: the importance of the weights. In *Conference Proceedings International Conference " New Challenges of Economic and Business Development"*.

Munda, G. (2012). Choosing aggregation rules for composite indicators. *Social indicators research*, 109(3), 337-354.

Munda, G., & Nardo, M. (2005). Constructing consistent composite indicators: the issue of weights. Institute for the Protection and Security of the Citizen: EU

Nardo, M., Saisana, M., Saltelli, A., & Tarantola, S. (2005). Tools for composite indicators building. *Ispira*, 15(1), 19-20.

Saisana, M., Saltelli, A., & Tarantola, S. (2005). Uncertainty and sensitivity analysis techniques as tools for the quality assessment of composite indicators. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, 168(2), 307-323.

Saltelli, A. (2007). Composite indicators between analysis and advocacy. *Social indicators research*, 81(1), 65-77.

Stefana, E., Marciano, F., Rossi, D., Cocca, P., & Tomasoni, G. (2021). Composite indicators to measure quality of working life in Europe: A systematic review. *Social Indicators Research*, 157(3), 1047-1078.

Yang, L. (2014). An inventory of composite measures of human progress. *Occasional Paper on Methodology*. New York: UNDP
https://hdr.undp.org/sites/default/files/inventory_report_working_paper.pdf.

Unit II: Measurement of Human Development Index (12 hrs)

2.1	Philosophical Discourse and Theorization of Human Development
2.2	Measurements of Human Development : Origins, Evolution, Indicators and Components and Construction of HDI
2.3	Case Discussion: Nepal Human Development Index and Norwegian Human Development Index
2.4	Implication of HDI
Readings	<p>Cherchye, L., Moesen, W., Rogge, N., & Van Puyenbroeck, T. (2011). Constructing composite indicators with imprecise data: <i>A Proposal. Expert Systems with Applications</i>, 38(9), 10940-10949.</p> <p>Grupp, H., & Schubert, T. (2010). Review and new evidence on composite innovation indicators for evaluating national performance. <i>Research Policy</i>, 39(1), 67-78.</p> <p>Karagiannis, G. (2017). On aggregate composite indicators. <i>Journal of the Operational Research Society</i>, 68(7), 741-746.</p> <p>Karagiannis, R., & Karagiannis, G. (2020). Constructing composite indicators with Shannon entropy: The case of Human Development Index. <i>Socio-Economic Planning Sciences</i>, 70, 100701.</p> <p>Munda, G., & Nardo, M. (2003). On the methodological foundations of composite indicators used for ranking countries. Ispra, Italy: <i>Joint Research Centre of the European Communities</i>, 1-19.</p> <p>Ngouhouo, I., & Nchofoung, T. N. (2021). Economic Resilience in Sub-Saharan Africa: Evidence from Composite Indicators. <i>Journal of the Knowledge Economy</i>, 1-22.</p> <p>Savić, G., & Martić, M. (2017). Composite indicators construction by data envelopment analysis: Methodological background. In <i>Emerging Trends in the Development and Application of Composite Indicators</i> (pp. 98-126). <i>IGI Global</i>.</p> <p>Sayed, H., Hamed, R., Ramadan, M. A. G., & Hosny, S. (2015). Using meta-goal programming for a new human development indicator with distinguishable country ranks. <i>Social Indicators Research</i>, 123(1), 1-27.</p> <p>Sen, A. (2000). <i>Development as freedom (Indian edition)</i>. New Delhi: Oxford University Press.</p>

	<p>Todaro, M.P & Smith, S.C. (2010). <i>Economic development (10th edition)</i>. Delhi: Pearson Education Asia.</p> <p>UNDP (2011). <i>Nepal human development Report 2011 sustainability and equity: A better future for all</i>. UNDP: Nepal</p> <p>UNDP (2020). <i>Nepal human development report 2020: Beyond graduation: Productive transformation and prosperity</i>. UNDP: Nepal</p> <p>UNDP. (2004). <i>Nepal human development report, 2004; 'empowerment and poverty reduction'</i>. Kathmandu: UNDP.</p>
Unit III: Measurement of Sustainable Development Index (16 hrs)	
3.1	Evolution of Sustainable Development
3.2	Components and Dimensions of Sustainable Development: Society, Economy, Environment and Institutional and Governance
3.3	Measurement and analysis of Sustainable Development: Living Standard Index, Sustainability Index, Multiple Dimensional Poverty Index, Environmental Performance Index and Corruption Index
Readings	<p>Anholt, S., & Govers, R. (2014). The good country index: Technical report. <i>The Good Country Party</i>. https://index.Sgoodcountry.org/</p> <p>Basu, S.R. (2002). Does governance matter? Smye2002.Basu</p> <p>Becker, W. and Saltelli, A. (2015). Design for sensitivity analysis. In A. Dean, M. Morris, J.Stukfen, and D. Bingham(eds). <i>Handbook of Design and Analysis of Experiments</i> (Ist Ed, 627-674), New York.</p> <p>CBS (2010/11). <i>Nepal living standard survey III</i>. Kathmandu: CBS.</p> <p>Dutta, S., Lanvin, B., & Wunsch-Vincent, S. (2016). <i>The global innovation index 2016: Winning with Global Innovation</i>. USA: World Intellectual Property Organization, and Johnson Graduate School of Management (Cornell University).</p> <p>Falatooni, E., Selen, W., & Kerr, D. (2016). A new framework for selecting composite indicators to assess sustainability of a destination. <i>Athens Journal of Tourism</i>, 3(1), 7-24.</p>

- Floridi, M., Pagni, S., Falorni, S., & Luzzati, T. (2011). An exercise in composite indicators construction: Assessing the sustainability of Italian regions. *Ecological economics*, 70(8), 1440-1447.
- Gómez-Limón, J. A., & Sanchez-Fernandez, G. (2010). Empirical evaluation of agricultural sustainability using composite indicators. *Ecological economics*, 69(5), 1062-1075.
- Hsu, A., & Zomer, A. (2014). Environmental performance index. Wiley StatsRef: Statistics Reference Online, 1-5. <https://doi.org/10.1002/9781118445112.stat03789.pub2> ; <https://onlinelibrary.wiley.com/doi/10.1002/9781118445112.stat03789.pub2>
- Ionescu, A. M. Utilization of multivariate statistical methods in the construction of composite indicators of quality of life. *Economical essays*, 186.
- Karagiannis, R., & Karagiannis, G. (2020). Constructing composite indicators with Shannon entropy: The case of human development index. *Socio-Economic Planning Sciences*, 70, 100701.
- Lemke, C., & Bastini, K. (2020). Embracing multiple perspectives of sustainable development in a composite measure: The Multilevel Sustainable Development Index. *Journal of Cleaner Production*, 246, 118884.
- Marzi, S. (2019). Role and development of composite indicators for climate change and sustainable development policies and practices.
- Mitchell, G., May, A., & McDonald, A. (1995). PICABUE: A methodological framework for the development of indicators of sustainable development. *The International Journal of Sustainable Development & World Ecology*, 2(2), 104-123.
- Moffatt, I. (2008). A preliminary analysis of composite indicators of sustainable development. *The International Journal of Sustainable Development and World Ecology*, 15(2), 81-87.
- Moffatt, I. (2008). A preliminary analysis of composite indicators of sustainable development. *The International Journal of Sustainable Development and World Ecology*, 15(2), 81-87.

- Nhemachena, C., Matchaya, G., Nhemachena, C. R., Karuaihe, S., Muchara, B., & Nhlengethwa, S. (2018). Measuring baseline agriculture-related sustainable development goals index for Southern Africa. *Sustainability*, 10(3), 849.
- Otoi, A., Titan, E., & Dumitrescu, R. (2014). Are the variables used in building composite indicators of well-being relevant? Validating composite indexes of well-being. *Ecological indicators*, 46, 575-585.
- Quiroz, J. C., & Lintzer, M. (2013). *The 2013 resource governance index. Technical report*. New York: The Revenue Watch Institute.
- Saisana, M., & Philippas, D. (2012). Sustainable society index (SSI): Taking societies' pulse along social, environmental and economic issues. *Environmental Impact Assessment Review*, 32, 94-106.
- Schoenaker, N., Hoekstra, R., & Smits, J. P. (2015). Comparison of measurement systems for sustainable development at the national level. *Sustainable Development*, 23(5), 285-300.
- Schüler, D. (2006). The uses and misuses of the gender-related development index and gender empowerment measure: a review of the literature. *Journal of Human Development*, 7(2), 161-181.
- Sébastien, L., & Bauler, T. (2013). Use and influence of composite indicators for sustainable development at the EU-level. *Ecological indicators*, 35, 3-12.
- Sébastien, L., & Bauler, T. (2013). Use and influence of composite indicators for sustainable development at the EU-level. *Ecological indicators*, 35, 3-12.
- Talukder, B., W Hipel, K., & W vanLoon, G. (2017). Developing composite indicators for agricultural sustainability assessment: Effect of normalization and aggregation techniques. *Resources*, 6(4), 66.
- UN, (1987). *Our common future*. New York: UN.

	<p>Zhou, P., & Ang, B. W. (2008). <i>Indicators for assessing sustainability performance. In Handbook of performability engineering</i> (pp. 905-918). Springer: London.</p> <p>Zhou, P., & Zhang, L. P. (2018). <i>Composite indicators for sustainability assessment: Methodological developments. In energy, environment and transitional green growth in China</i> (pp. 15-36). Springer: Singapore.</p>
Unit IV: Understanding the Practices of SDG in Nepal (6 hrs)	
4.1	Appraisal of SDG Goals, Indicators and Strategy
4.2	Critical Discourse SDGs on Poverty, Food Security and Gender Inequality
4.3	Understanding Implementation, Progress and Challenges of SDG at Federal, Province and Local level
4.4	Localization of SDGs in Nepal
Readings	<p>National Planning Commission (NPC) (2013). <i>Nepal millennium development goals: Progress reports (2013)</i>. Kathmandu: NPC.</p> <p>National Planning Commission (NPC) (2014). <i>Nepal sustainable development goals: Status and roadmap (2016-2030)</i>. Kathmandu: NPC</p> <p>National Planning Commission (NPC) (2014). <i>The 14th three years plan (2072/73-2075/76)</i>. Kathmandu: NPC.</p> <p>National Planning Commission (NPC) (2019). <i>The 15th five years plan (2076/77-2080/81)</i>. Kathmandu: NPC.</p> <p>National Planning Commission (NPC) (2021). <i>Multidimensional poverty index: Analysis towards Action</i>. Kathmandu: NPC.</p>

Performance Evaluation

As per the rules of Tribhuvan University, performance of the students will be evaluated through internal and final examination system as given below.

- Internal evaluation: 40%
- Final examination: 60%

Internal evaluation will be done through class test, paper writing, home assignments, practical, seminar/workshop, class presentation, and participation in the discussions.